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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,642	12/15/2003	Erwin Van Zwet	081468-0307212	9080

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EXAMINER	
NGUYEN, HUNG	

ART UNIT	PAPER NUMBER
2851	

DATE MAILED: 08/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/734,642	ZWET ET AL.	
	Examiner	Art Unit	
	Hung Henry V. Nguyen	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) *19 and 20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18 and 21-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-24* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/6/04;1/11/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of group I (claims 1-18, 21-24 in the reply filed on June 3, 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Objections

2. Claim 9 is objected to because of the following informalities: the recitation of "said dielectric layer is less than about 40 microns" is unclear. It is not clear whether or not, the applicant refers to thickness of the dielectric layer or its other property. Please clarify and appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an

international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1, 16-18, 22-24 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Klebanoff (U.S.Pat. 6,169,652).

5. With respect to claims 1, 16-18 and 22, 24, Klebanoff et al discloses a lithographic apparatus comprising all of the structures set forth in the instant claims such as: an illumination system for providing beam of radiation to an article; a support for supporting the article (see figure 4) and an article handler configured to handle the article (10) during placement of the article on and removal of the article from, the support and an electrostatic clamp having an electrode (3A, 3B) and a dielectric layer (2), configured to clamp the article to the article handler.

6. Claims 1, 16-18, 22-24 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Yamada et al (U.S.Pat. 6,134,096).

With respect to claims 1, 16-18, 22-24, Yamada et al discloses a lithographic apparatus (see col.1, lines 11-16) comprising all of the limitations of the instant claims such as: an illumination system to provide a beam of radiation on a flat article to be placed in a beam path of the radiation beam and an article handler to handle the article during placement or removal of the article and the article handler having an electrode and a dielectric layer in order to form an electrostatic clamp to electrostatic ally clamp the article (see figure 1)

7. Claims 1-2, 6-7, 10-11, 14, 16-18, 22-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Kitabayashi et al (U.S.Pat. 5,530,616).

With respect to claims 1, 16-18, 22-24, Kitabayashi et al discloses an article handler (1) for used in an exposure apparatus, to handle a flat article (W) during placement or removal of the article, and comprising all of the structures set forth in the instant claim such as: an electrode (4) and a dielectric layer (3) in order to form an electrostatic clamp to electrostatic ally clamp the article.

As to claim 2, Kitabayashi et al discloses the article handle (1) having at least three mutually distanced contact members (5) for contacting the article (W).

As to claim 6, Kitabayashi et al further discloses the dielectric layer (3) is provided with protrusions (5) to provide a gap between the dielectric layer (3) and the article (W) to be handled (see figure 1).

As to claim 7, Kitabayashi discloses the gap ranges between about 0.1 and about 5 microns (see col.6, lines 33-35).

As to claim 10, Kitabayashi et al discloses the electrostatic clamp is designed to provide a clamping pressure greater than about 1.10^4 Pa (see col.6, lines 50-51).

As to claim 11, Kitabayashi et al teaches the article handler (1) includes two electrodes (4, 10).

As to claim 14, it can be seen from the figure 1 of Kitabayashi that a metal pad bonded to the electrode in order to form a terminal for wiring and connecting the electrode to a power source.

It is noted that although, Kitabayashi does not specifically disclose the claimed illumination system, this feature is seen to be an inherent teaching of that device since it is apparent that some type of illumination system must be present for the device of Kitabayashi to function as intended.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 4 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitabayashi et al (U.S.Pat. 5,530,616) in view of Blake et al (U.S.Pat. 5,436,790).

As to claims 4 and 21, Kitabayashi et al discloses substantially all of the limitations of the instant claims as discussed except for a presence detector, as recited in the instant claims. Blake et al discloses an electrostatic handler for handling an article and having a presence detector for detecting the presence of the article through a measured capacity formed on an electrode, and the dielectric layer of the handler (see col.5, lines 42-58). It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Kitabayashi et al and Blake et al to obtain the invention as specified in claims 4 and 21 of the present invention. It would have been obvious to a skilled artisan to employ the presence detector as taught by Blake et al into the electrostatic handler of Kitabayashi for the purpose of detecting the presence of the article on the handler and thus the status of the handle can be determined.

10. Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitabayashi et al (U.S.Pat. 5,530,616).

As to claim 3, Kitabayashi et al discloses substantially all of the limitations of the instant claims as discussed except for the contact area of the contact members being less than $80mm^2$. However, Kitabayashi discloses the diameter of each of the protrusion being of at most 3mm (see col.2, line 43-44) and suggests that the ratio of the total area of the upper surfaces of protrusions (5) to the entire area of the upper surface of a dielectric layer of the electrostatic chuck being less than 10% (see col.4, lines 48-56). This provides a clear evidence that it would have been obvious to one having ordinary skill in the art at the time the invention was made to determine the total clamping surface of the contact members/protrusions. It would have been obvious to a skilled artisan to select the total contact area of the protrusions of Kitabayashi being less than about $80mm^2$ for the purpose of producing necessary clamping forces. Also, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

11. Claims 8-9 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitabayashi et al (U.S.Pat. 5,530,616) in view of Divakar (U.S.Pat. 6,606,234).

As to claims 8-9, Kitabayashi et al does not expressly disclose the material of the dielectric layer being at least one of SiO_2 and SiN, and the thickness of the dielectric layer being less than 50 microns and a dielectric constant being greater than about 3. Divakar teaches an electrostatic chuck having a dielectric layer with the thickness from about 10microns to about 5mm (see col.3, lines 58-60) and the material of the dielectric layer being SiO_2 (see col.4, line

32). Since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice and furthermore, in view of the teachings of Divakar, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select the thickness and the material of the dielectric layer of Kitabayashi as specified in the instant claims, as suggested by Divakar, for the purpose of providing a proper clamping pressure of the electrostatic handler.

As to claims 12-15, Kitabayashi et al does not expressly disclose the material of electrode as well as the metal pad, as recited in the instant claims. Since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice, it would have been obvious to a skilled artisan to select the well known materials of the electrode and the metal pad, as recited in the instant claims for the purpose of providing a proper clamping pressure of the electrostatic handler.

Prior Art Made of Record

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kosakai (U.S.Pat. 6,556,414); Atari et al (U.S.Pat. 5,413,360) and Larsen (U.S.Pat. 6,839,217) disclose electrostatic chucks, each of which comprises substantially all elements as recited in the instant claims of the present application.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V. Nguyen whose telephone number is 571-272-2124. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hung Henry V Nguyen
Primary Examiner
Art Unit 2851

hvn
7/29/05